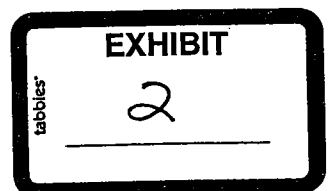


# FACT SHEET FOR AQUATIC NOXIOUS WEED CONTROL GENERAL NPDES PERMIT

## SUMMARY

The State of Washington Department of Ecology (Department) has tentatively determined to issue a general permit for the application of herbicides to control noxious and quarantine weeds in surface waters of the State of Washington. The use of herbicides is subject to the provisions of integrated pest management plans (IPMs) and conditioned in salmonid bearing waters. Monitoring is required of and developed by the permittee. Any short term toxicity to aquatic organisms is allowed under the terms of the permit and the water quality modification provisions to perform essential activities that protect other beneficial uses of the waters of the state. The proposed terms, limitations and conditions contained herein are tentative and may be subject to change, subsequent to public comments received by the department and testimony provided at public hearings. All activities accepted under the general permit will not be relieved of any responsibility or liability at any time during the life of the permit for violating State water quality standards; or violating any other local, State, or Federal regulation or standard as may pertain to the individual activity. Pesticide applications to surface waters not accepted under a general permit may be required to apply for an individual permit. Any surface water application of herbicide found not covered under either the general permit or an individual permit may be considered to be operating without a discharge permit and subject to potential enforcement action.

On March 12, 2001, the Ninth Circuit Court of Appeals decided that application of a herbicide in compliance with the labeling requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) did not exempt an irrigation district from needing to obtain a NPDES permit. (Headwaters, Inc. v. Talent Irrigation District). Ecology, as had many more states, had been issuing orders that were not NPDES permits that placed protective conditions on the use of herbicides in waters of the state. This general permit will replace those short term modifications where herbicide applications are directed into surface waters of the state for the purpose of controlling noxious weeds.



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## INTRODUCTION

This fact sheet is a companion document that provides the basis for issuance of the Aquatic Noxious Weed Control National Pollutant Discharge Elimination System (NPDES) General Permit. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastes from aquatic noxious weed herbicide applications and from nonchemical methods associated with herbicide application to control noxious and quarantine weeds to surface waters of the State of Washington, which are also waters of the United States, pursuant to the provisions of chapters 90.48, 90.52, and 90.54 Revised Code of Washington (RCW) and the Federal Water Pollution Control Act (FWPCA) as amended. This fact sheet explains the nature of the proposed discharges, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for these decisions.

The Federal Clean Water Act (FCWA, 1972, and later modifications (1977, 1981, and 1987), established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The establishment of a general permit for Aquatic Noxious Weed Control is appropriate due to the similar environmental fate specific to each permitted herbicide, the specific requirements of RCW 90.48.445 and 90.48.448, the statewide scope of aquatic noxious weed control, and the significant reduction of resources necessary for permit handling. However, individual permits will still be considered in those instances where a proposed activity requires more detailed guidance, or when an individual applicator so desires and the Department approves.

The regulations adopted by the State include procedures for issuing general permits (Chapter 173-226 WAC), water quality criteria for surface waters (Chapters 173-201A WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastes to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-226-110) for issuing a general permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the draft permit, public hearings, comment periods, and public notice of issuance are all required before the general permit is issued (WAC 173-226-130). The fact sheet, application for coverage, and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by representatives of the potential permittees and other members of a permit advisory group. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response

to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The original fact sheet will not be revised after the public notice is published. Comments and the resultant changes to the permit will be summarized in Appendix F--Response to Comments.

## **BACKGROUND INFORMATION**

In May, 1996, the Talent Irrigation District (TID) in southern Oregon applied the herbicide acrolein to an irrigation canal. A leaking waste gate resulted in the discharge of treated water into Bear Creek where a fish kill occurred.

Headwaters, Inc. and Oregon Natural Resources Council filed a Clean Water Act citizen suit against the Talent Irrigation District (TID) for applying aquatic herbicide into a system of irrigation canals. Reversing a district court's opinion, the Ninth Circuit in a March 12, 2001 decision held that application of the herbicide in compliance with the labeling requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) did not exempt TID from having to obtain a National Pollutant Discharge Elimination System (NPDES) permit, and that the irrigation ditches were "waters of the United States" under the Clean Water Act.

The department is issuing the general permit so that the application of aquatic herbicides for the control of noxious and quarantine weeds will be compliant with the Clean Water Act. For purposes of this fact sheet, the term noxious weed also includes the weeds on the quarantine list which is found at WAC 16-752-500 through 525. These weeds when found are treated as noxious weeds. They are not on the noxious weed list only because they are not yet present in the state or are not at great distribution levels.

The Federal Insecticide, Fungicide, and Rodenticide Act of 1979 (FIFRA), as administered by the United States Environmental Protection Agency (EPA), requires that all persons who apply pesticides classified as restricted use be certified according to the provisions of the act or that they work under the supervision of a certified applicator. Commercial and public applicators must demonstrate a practical knowledge of the principles and practices of pest control and safe use of pesticides, which is accomplished by means of a "core" examination. In addition, applicators using or supervising the use of any restricted use pesticides purposefully applied to standing or running water (excluding applicators engaged in public health related activities) are required to pass an additional exam to demonstrate competency as described in the code of federal regulations as follows:

"Aquatic applicators shall demonstrate practical knowledge of the secondary effects which can be caused by improper application rates, incorrect formulations, and faulty application of restricted pesticides used in this category. They shall demonstrate practical knowledge of various water use situations and the potential of downstream effects. Further, they must have practical knowledge concerning potential pesticide effects on plants, fish, birds, beneficial insects and other organisms which may be present in aquatic environments.

Applicants in this category must demonstrate practical knowledge of the principles of limited area application." (40 CFR 171.4)

Aquatic plants provide habitat and food for aquatic life. Human activities have created unwanted consequences in native aquatic ecosystems. Nutrient additions cause increased growth of plants and introduction of non-native plants can cause shifts in the native ecosystem. The non-native plants often do not have any predators or parasites and may outcompete beneficial plants. A major reason for the existence of weed problems is the introduction of exotic species from other locations. These plants quickly replace native vegetation and may dominate large acreages. This group includes the most troublesome weeds such as cordgrass, Eurasian watermilfoil, purple loosestrife, and hydrilla. When a nonnative aquatic plant has the potential to lessen ecosystem diversity and negatively impact beneficial uses of waters of the state, it may be listed as a noxious weed.

A herbicide formulation consists of an active ingredient, an inert carrier, and perhaps adjuvants. Every herbicide must be registered for use in the United States by the EPA.

**Table 2.** Classification of aquatic herbicides used in noxious weed control

## **ABSORPTION CHARACTERISTICS**

### **Contact Herbicides**

Diquat, Endothall

### **Systemic Herbicides**

2,4-D, Fluridone, Glyphosate, Imazapyr, Triclopyr

## **PHYSIOLOGICAL PROCESSES**

### **Tissue Development**

2,4-D

### **Photosynthesis**

Diquat, Fluridone

### **Respiration**

Endothall

### **Nitrogen Metabolism and Enzyme Activity**

Glyphosate

## **SELECTIVITY**

### **Nonselective (Broad Spectrum)**

Diquat, Endothall, Glyphosate, Imazapyr, Fluridone (may be selective in low Concentrations).

### **Selective**

2,4-D, Triclopyr

Aquatic herbicides can disappear from treated water by dilution, adsorption to bottom sediments, volatilization, absorption by plants and animals or by dissipation. Dissipation refers

to the breaking down of an herbicide into simpler chemical compounds. Herbicides can dissipate by photolysis (broken down by light), hydrolysis, microbial degradation, or metabolism by plants and animals. Both dissipation and disappearance are important considerations to the fate of herbicides in the environment because even if dissipation is slow, disappearance due to processes such as adsorption to bottom sediments makes a herbicide biologically unavailable.

### ***2,4-D***

Dissipation of 2,4-D is mostly by microbial degradation. A small amount of photodecomposition and breakdown by tolerant plants also occurs. Volatile forms of 2,4-D are not used for aquatic weed control and therefore volatilization is not an important route of disappearance after aquatic weed control applications. Complete decomposition usually takes about 3 weeks in water and can be as short as 1 week.

### ***Diquat***

After application to enclosed ponds for submersed weed control, diquat is rarely found longer than 10 days after application and is often below detection 3 days after application. The most important reason for the rapid disappearance of diquat from water is that it is rapidly taken up by aquatic vegetation and bound tightly to particles in the water and bottom sediments. When bound to certain types of clay particles diquat is not biologically available. When it is bound to organic matter it can be slowly degraded by microorganisms. When diquat is applied foliarly it is degraded to some extent on the leaf surfaces by photodegradation, and because it is bound in the plant tissue a proportion is probably degraded by microorganisms as the plant tissue decays.

### ***Endothall***

Like 2,4-D, endothall is rapidly and completely broken down into naturally occurring compounds by microorganisms. This is the primary method of endothall breakdown. The by-products of endothall dissipation are carbon dioxide and water. Complete breakdown usually occurs in about 2 weeks in water and 1 week in bottom sediments.

### ***Fluridone***

Dissipation of fluridone from water occurs mainly by photodegradation. Metabolism by tolerant organisms and microbial breakdown also occurs, and microbial breakdown is probably the most important method of breakdown in bottom sediments. The rate of breakdown of fluridone is variable and may be related to time of application. Applications made in the fall or winter when the sun's rays are less direct and days are shorter result in longer half-lives. Fluridone usually disappears from pondwater after about 3 months but can remain up to 9 months. It may remain in bottom sediment between 4 months and 1 year.

### ***Glyphosate***

Glyphosate is not applied directly to water for weed control, but when it does enter the water it is bound tightly to dissolved and suspended particles and to bottom sediments and becomes inactive.

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Some of the emergent or floating leaved noxious weeds that are treated with herbicide when the plant is not under water include, but are not limited to:

cordgrass	<i>Spartina</i> species
water primrose	<i>Ludwigia hexapetala</i>
garden loosestrife	<i>Lysimachia vulgaris</i>
purple loosestrife	<i>Lythrum salicaria</i>
wand loosestrife	<i>Lythrum virgatum</i>
fragrant water lily	<i>Nymphaea odorata</i>
yellow floating heart	<i>Nymphoides peltata</i>
flowering rush	<i>Butomus umbellatus</i>
grass-leaved arrowhead	<i>Sagittaria graminea</i>
hairy willow herb	<i>Epilobium hirsutum</i>
marsh dew flower	<i>Murdannia keisak</i>
European frog-bit	<i>Hydrocharis morsus-rana</i>
reed canarygrass	<i>Phalaris arundinacea</i>

Noxious weeds that are treated with herbicides directly into surface waters of the state include, but are not limited to:

hydrilla	<i>Hydrilla verticillata</i>
Brazilian elodea	<i>Egeria densa</i>
fanwort	<i>Cabomba caroliniana</i>
parrotfeather	<i>Myriophyllum aquaticum</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
African elodea	<i>Lagarosiphon major</i>
mud mat	<i>Glossostigma diandrum</i>
slender-leaved naiad	<i>Najas minor</i>
swollen bladderwort	<i>Utricularia inflata</i>
water chestnut	<i>Trapa natans</i>

For more information about noxious and quarantine weeds see the following websites:

Ecology's website address is: <http://www.ecy.wa.gov/programs/wq/plants/weeds/index.html>

The Washington State Noxious Weed Control Board's web site address is:

[http://www.wa.gov/agr/weedboard/weed\\_info/contents.html](http://www.wa.gov/agr/weedboard/weed_info/contents.html)

Agriculture's Quarantine Weeds are listed at:

[http://www.wa.gov/agr/weedboard/weed\\_list/prohibited.html](http://www.wa.gov/agr/weedboard/weed_list/prohibited.html)

## HISTORY OF AQUATIC HERBICIDE ENVIRONMENTAL REVIEW

In 1980, Ecology completed an *Environmental Impact Statement* (EIS) for statewide program guidance in the issuance of short-term modifications for herbicides used in aquatic plant control. Since 1980, a number of mechanical and physical methods (i.e. mechanical harvesting, rotovation, bottom barriers, and cutters) were developed and used extensively for aquatic

vegetation control, and various methods of biological control have undergone research and development during the past two decades. Changes also occurred in the understanding of aquatic ecosystems, including the role of wetlands and the need to consider and control impacts such as nutrient and sediment loading within the total watershed of any particular waterbody. To address these changes and the broadening field environmental choices in aquatic plant management, Ecology updated and supplemented the EIS with the *Final Supplemental Environmental Impact Statement for the Aquatic Plant Management Program* (SEIS), dated January 1992.

The current supplement, SEIS 2001, updates the 1992 SEIS and assesses new aquatic herbicides or permitted herbicides with recent label changes, for use in Washington waters. The herbicides were selected by the Agency Steering Committee for Update of the 1992 Aquatic Plant SEIS on the basis of registration status, desirability for use and direction from Senate Substitute Bill 5424 (1999, codified in RCW 90.48.447).

Ecology is the primary lead for the current supplemental update to the SEIS, but has received advisory and review assistance from the Agency Committee for Update of the 1992 Aquatic Plant SEIS (The Steering Committee). The Steering Committee is comprised of representatives from the State Departments of Agriculture, Health, Fish and Wildlife, Natural Resources, Ecology and the State Noxious Weed Control Board, all agencies with jurisdiction and/or interest in aquatic plant control. The Washington State Department of Agriculture (WSDA) is charged with regulating pesticide applicators, registering pesticides for use in the state, and, along with the State Noxious Weed Control Board, with controlling noxious plants within the state. The Department of Health is charged with protection of human health. The Department of Fish and Wildlife has received requests for Hydraulic Project Approvals (HPA's) to implement various physical and mechanical methods and is charged with protecting fish and wildlife. The Departments of Natural Resources and Ecology have concerns with the potential impact of various plant control methods on the natural resources they are charged with managing. The Departments of Fish and Wildlife and Natural Resources have also been mandated by the legislature to develop programs for controlling particular noxious emergent species on state-owned or managed lands.

The 1980 EIS evaluated the impacts of endothall, diquat, dichlobenil (2,6-dichlorobenzonitrile), 2,4-D [(2,4-dichlorophenoxy) acetic acid], copper sulfate, komeen and simazine, all aquatic herbicides used for control of nuisance aquatic vegetation. Since 1980, diquat, dichlobenil, 2,4-D, and simazine were discontinued for use in the program and fluridone and glyphosate were introduced. The 1992 SEIS introduced an integrated pest management approach as the preferred method of control and evaluated the use of chemical controls only, physical controls only, biological controls only, continuation of current practices, and taking no action relative to controlling nuisance aquatic plants. The 1992 SEIS evaluated and allowed the use of copper, endothall, fluridone and glyphosate to control various types of aquatic plants. SEIS 2001 contains an update of the alternatives included in the 1992 supplement and evaluates two additional sets of herbicides. The first set includes 2,4-D formulations registered for aquatic use by the state and endothall formulations Hydrothol® 191 and Aquathol®, completed May 2000. A second set of assessments, scheduled for completion February 2001, will evaluate diquat, triclopyr, and copper compounds.



## CLASSIFICATION OF ADJUVANTS

**Adjuvants can be grouped into three categories**, activator adjuvants, spray-modifier adjuvants and utility-modifier adjuvants. The following is a description of the different types of additives grouped into categories according to the type of action as described by C. G. McWhorter in WSSA's, *Adjuvants for Herbicides*.

### Surfactants

Surfactants are commonly used herbicide additives associated with the enhancement of penetration of the spray solution through the leaf tissues. The increase in leaf penetration is associated with a reduction of surface tension of liquids, which improves wetting of the leaf surface. Increased penetration may also be due to the surfactant dissolving leaf tissue components.

### Wetting Agents

The term "wetting agent" applies to any spray additive that increases the ability of water to displace air or liquids from a plant surface. This displacement helps spread the spray solution over the entire plant surface more evenly. Some degree of wetting is also a property of all surfactants, however the extent of wetting may vary greatly among products.

### Oils

Water emulsions with many herbicides can increase weed control. The oil-water emulsion may increase retention time of sprayed material and enhances uptake through leaf surfaces. Most marketed oil-surfactant concentrates contain around 80% oil and 20% surfactant in their formulation. The rate of application varies, but a rate of 1 qt per acre to 2 gal per acre is most common. Many herbicides are formulated as emulsions and have a milky appearance when added to water.

### Spray-Modifier Adjuvants

This group of adjuvants has its greatest influence on the delivery and placement of the spray solution. Additives which alter or modify the spray, such as polymers, inverts, and foams, are included in this group.

### Stickers, Spreaders and Spreader-stickers

Stickers are made of vegetable gels, resins, mineral oils, vegetable oils, waxes, or latex polymers. Spreaders are blends of surfactants, primarily nonionic (uncharged particles), used for spreading and adhering spray droplets to foliage. Spreader-stickers simply combine the two for additional retention during wet conditions. These materials are often more expensive than surfactants and therefore have limited use with herbicides; most are marketed for wettable powder formulations of fungicides and insecticides.

### Polymers

Used in aquatic plant control primarily for drift control, these long-chain carbon molecules (up

to 40,000 carbon units per polymer strand), are also used to help break surface tension of the water surface to aid in sinking the herbicide. Depending on the type of polymer formulation and the extent of drift control desired, the rate is usually between 0.1% and 1.0% of the total spray volume. Polymers marketed as sinking agents are designed for that particular purpose. They have a higher molecular weight, are generally formulated as an emulsion and require good agitation. Polymers formulated for drift control on the other hand are easier to mix, require less agitation and are generally formulated as solutions. Solution polymers are not formulated as sinking agents and generally dissociate when they contact the water surface.

#### **Utility-Modifier Adjuvants**

Utility modifiers are materials that when added to the spray solution improve the conditions in which the formulated mixture is useful. Types of modifiers include emulsifiers, dispersants, stabilizing agents, coupling agents, co-solvents, compatibility agents, buffering agents, and antifoam agents. Buffering agents, marker dyes, and antifoam agents are perhaps the only two with aquatic plant management significance.

#### **Marker Dyes**

Low toxicity dyes may be added to the spray mixture to mark where otherwise colorless mixtures have been applied. Dyes used in this way help to reduce overspray and underspray.

#### **Antifoam agents**

These materials are most commonly silicone based and are used for eliminating foam in the spray tank. Generally used at 0.1% or less of the total spray volume, these additives are especially useful when mixing herbicides with soft water, where foaming problems are usually greatest.

### **DESCRIPTION OF AQUATIC HERBICIDE APPLICATION TECHNIQUES**

The primary application methods and nozzle considerations in aquatic weed control are:

- 1. Handgun spraying of surface, emersed, and ditch bank species:** Handguns are equipped with nozzles that provide a high flow rate (3 to 6 gal/minute), a straight stream, and a large droplet size. This arrangement ensures thorough wetting of the target vegetation with minimum spray drift. Low volume back pack sprayers are often used for emergent plant control. The applicator may also wick or "paint" the herbicide directly onto the targeted plant.
- 2. Subsurface injection just below the water surface for submersed weed control:** Usually short hoses are spaced at approximately 2-ft intervals on a short, bow or stern-mounted boom. Hoses are just long enough to place the nozzle at the water surface or just below it. The nozzle body contains a disk that meters the flow into the water.
- 3. Bottom placement or deep-water injection:** Nozzles are located at the end of long hoses that trail from a boom on the bow of the boat. Hoses are usually weighted to keep the

herbicide placement deep within the weed mat or near the bottom. A common arrangement involves constructing a nozzle by drilling small holes in a piece of galvanized pipe. The length of the pipe depends on how much weight is needed to lower the hose to the desired depth. Pipe length varies from 9 to 30 in. The pipe is capped on one end and attached to the hose on the other. Deep-water injection hoses must not have any clamps or protrusions that will catch and hold plants.

**4. Bow-mounted centrifugal or blower-type spreaders:** Granular herbicides are normally applied with a bow-mounted centrifugal or blower-type spreader. Centrifugal spreaders use a rotor that slings the material. Blower-type spreaders use air pressure to propel the granules.

## REGULATORY POLLUTION REDUCTION REQUIREMENTS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits, either technology- or water quality-based must be chosen for each of the parameters of concern.

## TECHNOLOGY BASED WATER QUALITY PROTECTION REQUIREMENTS

Sections 301, 302, 306, and 307 of the FWPCA established discharge standards, prohibitions, and limits based on pollution control technologies. These technology-based limits are "best practical control technology" (BPT), "best available technology economically achievable" (BAT), and "best conventional pollutant control technology economically achievable" (BCT). Compliance with BPT/BAT/BCT may be established using a "best professional judgement" (BPJ) determination.

The State has similar technology-based limits which are described as: "all known, available and reasonable methods of control, prevention, and treatment" (AKART) methods. AKART is referred to in State law under RCW 90.48.010, RCW 90.48.520, 90.52.040 and RCW 90.54.020. The Federal technology-based limits and AKART are similar but not equivalent. AKART: (1) may be established for an industrial category or on a case-by-case basis; (2) may be more stringent than Federal regulations; and (3) includes not only treatment, but also BMPs such as prevention and control methods (i.e. waste minimization, waste/source reduction, or reduction in total contaminant releases to the environment). The Department and the Federal Environmental Protection Agency (EPA) concur that, historically, most discharge permits have determined state AKART as equivalent to federal BPJ determinations.

The pesticide application industry has been regulated by EPA under the terms of FIFRA. Pesticide use is regulated by label use requirements developed by EPA. In developing label use requirements, EPA requires the pesticide manufacturer to register each pesticide and provide evidence that the pesticide will work as promised and that unacceptable environmental harm will be minimized.

It is the intent of this general permit to authorize the noxious weed control activities mandated by the state legislature in a manner that also complies with federal and other state requirements.

The state statute that requires AKART also requires control of noxious weeds. The Washington State legislature declared in SB5670 (1999), prior to the Talent decision that

*“(1) the director shall issue or approve water quality permits for use by federal, state, or local governmental agencies and licensed applicators for the purpose of using, for aquatic noxious weed control, herbicides and surfactants registered under state or federal pesticide control laws, and for the purpose of experimental use of herbicides on aquatic sites, as defined in 40 C.F.R. Sec. 172.3. The issuance of the permits shall be subject only to compliance with: Federal and state pesticide label requirements, the requirements of the federal insecticide, fungicide, and rodenticide act, the Washington pesticide control act, the Washington pesticide application act, and the state environmental policy act, except that:*

*(a) When the director issues water quality permits for the purpose of using glyphosate and surfactants registered by the department of agriculture to control spartina, as defined by RCW 17.26.020, the water quality permits shall contain the following criteria:*

*(i) Spartina treatment shall occur between June 1st and October 31st of each year unless the department, the department of agriculture, and the department of fish and wildlife agree to add additional dates beyond this period, except that no aerial application shall be allowed on July 4th or Labor Day and for ground application on those days the applicator shall post signs at each corner of the treatment area;*

*(ii) The applicator shall take all reasonable precautions to prevent the spraying of nontarget vegetation and nonvegetated areas;*

*(iii) A period of fourteen days between treatments is required prior to re-treating the previously treated areas;*

*(iv) Aerial or ground broadcast application shall not be made when the wind speed exceeds ten miles per hour; and*

*(v) An application shall not be made when a tidal regime leaves the plants dry for less than four hours.*

*(b) The director shall issue water quality permits for the purpose of using herbicides or surfactants registered by the department of agriculture to control aquatic noxious weeds, other than spartina, and the permit shall state that aerial and ground broadcast applications may not be made when the wind speed exceeds ten miles per hour.*

*(c) The director shall issue water quality permits for the experimental use of herbicides on aquatic sites, as defined in 40 C.F.R. Sec. 172.3, when the department of*

*agriculture has issued an experimental use permit, under the authority of RCW 15.58.405(3). Because of the small geographic areas involved and the short duration of herbicide application, water quality permits issued under this subsection are not subject to state environmental policy act review.*

*(2) Applicable requirements established in an option or options recommended for controlling the noxious weed by a final environmental impact statement published under chapter 43.21C RCW by the department prior to May 5, 1995, by the department of agriculture, or by the department of agriculture jointly with other state agencies shall be considered guidelines for the purpose of granting the permits issued under this chapter."*

And later,

*"(4) As used in this section, "aquatic noxious weed" means an aquatic weed on the state noxious weed list adopted under RCW 17.10.080."*

All WWDPs issued by the department must incorporate requirements to implement reasonable prevention, treatment and control of pollutants.

The legislature established in the Washington Pesticide Control Act, RCW 17.15, that prevention of pollution in this case is reasonable only in the context of an Integrated Pest Management Plan. IPMs require the investigation of all control options, but do not require nonchemical pest controls as the preferred option. The goal of IPMs is to establish the most effective means of control whether chemical, nonchemical, or a combination. Most noxious weed control strategies are such a combination.

The Talent decision established that aquatic pesticides become waste in the water after the pesticide has performed its intended action and the target organisms are controlled. Treatment of the pollutants addressed in this permit is difficult due to the diffuse nature and low concentrations that exist after the pesticides have become waste.

Control of the pollutants addressed in this permit has been demonstrated previously in isolated situations where a routine application of the preferred pesticide may have caused unwanted impacts on nontarget organisms. Underwater curtains and other barriers have been used to isolate the area of pesticide application when downstream water users raise concerns or sensitive native plants or fisheries share the waterbody. However, the state legislature clearly intended to limit noxious weed control to FIFRA label requirements and the PCA. Control of pesticides by use of barriers will not be required unless triggered by FIFRA requirements or other local concerns

The Washington State Department of Agriculture (WSDA) occasionally authorizes experimental use of pesticides not yet registered for a particular use or application rate. These experimental projects are usually small in scope and infrequent. The permit allows experimental use in aquatic environments in order to promote alternatives that may be more effective while reducing impacts to nontarget organisms.

The WSDA is responsible for issuing experimental use permits for pesticides in Washington State. A Washington State Experimental Use Permit (WSEUP) is required for all experiments involving pesticides that are not federally registered or uses not allowed on the federally registered pesticide label. Limited amounts of an experimental use pesticide may only be distributed or used for testing purposes after a written permit has been obtained from WSDA for purposes which include gathering data in support of registration under FIFRA Section (3) or Section 24(c).

In most situations only a state WSEUP is required for the use of an experimental pesticide. A federal EUP is required when a small-scale test will be conducted on a cumulative total of more than 10 acres of land per pest on terrestrial sites or on more than one surface acre of water per pest. When testing for more than one target pest at the same time and in the same locality, the 10-acre limitation shall encompass all of the target pests. Any person may apply to the EPA for a federal experimental use permit for pesticides, which are usually valid for only one year. Applicants holding a valid federal experimental use permit must also apply for and be granted a state experimental use permit before initiating any shipment or use of the pesticide in Washington.

## **WATER QUALITY BASED REQUIREMENTS**

The noxious and quarantine weed control activities affect surface waters of the State. These waters are protected by chapter 173-201A WAC, Water Quality Standards for Surface Waters of the State of Washington.

The noxious weed control activities which discharge to surface waters will be required to meet the State water quality standards for Class A and Class AA surface waters as given in chapter 173-201A WAC. The characteristic beneficial uses of Class AA and A surface waters include, but are not limited to, the following: domestic, industrial and agricultural water supply; stock watering; the spawning, rearing, migration and harvesting of fish; the spawning, rearing and harvesting of shellfish; wildlife habitat; recreation (primary contact, sport fishing, boating, aesthetic enjoyment of nature); commerce and navigation.

RCW 90.48.035 authorizes establishment of water quality standards for waters of the State. The State has implemented water quality standards in chapter 173-201A WAC. All waste discharge permits issued pursuant to NPDES or SWD regulations are conditioned in such a manner that all authorized discharges shall meet State water quality standards. Standards include an "antidegradation" policy which states that beneficial uses shall be protected.

Discharges from noxious weed control activities may contain pollutants which, in excessive amounts, would have a reasonable potential to cause, or contribute to, violations of State water quality standards due to the presence of toxic materials. The Department has deemed that, when properly applied and handled in accordance with the terms and conditions of the general permit, noxious weed control activities will comply with State water quality standards, will

maintain and protect the existing characteristic beneficial uses of the surface waters of the State, and will protect human health. New information regarding previously unknown environmental and human health risks may cause reopening of the general permit.

No mixing or dilution zone shall be authorized to the Permittee for any discharge to surface waters under this general permit. The short term water quality modification provisions of the permit will allow the discharges authorized by the general permit to cause a temporary diminishment of some beneficial uses while the water body is altered to improve other beneficial uses.

The activities authorized by this general permit do not have a reasonable potential to cause a violation of state water quality standards (WAC 173-201A) so long as the activities are allowed under the short term water quality modification. The water quality modification provides for an exception to meeting certain provisions of the state water quality standards such as meeting all beneficial uses all the time. Activities covered under this permit are allocated a temporary zone of impact on beneficial uses, but the impact must be transient, and must allow for full restoration of water quality and protection of beneficial uses upon project completion. The conditions of the permit constitute the requirements of a water quality modification.

Washington's water quality standards now include 91 numeric human health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge does not contain chemicals in concentrations of concern for human health based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

### **Sediment Quality**

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

A 3-year study to assess the short- and long-term fate and potential effects to marine biota associated with repeated applications of Rodeo® to control smooth cordgrass was conducted in a southwestern Washington estuary. At each of three intertidal locations in Willapa Bay, plots were established on exposed mudflats and along the edge of a spartina meadow that were hand sprayed with Rodeo® (5% solution) and LI-700® (2% solution) during July 1997 and 1998.

Glyphosate concentrations in sediment from bare mudflat plots declined 88% to 96% from 1 day post-treatment in 1997 to 1 year after the second Rodeo® applications in 1999. In contrast, glyphosate concentrations in spartina plots increased 231% to 591% from 1997 to 1999 because spartina rhizomes likely held the glyphosate in tissue and did not readily metabolize or exude it. Comparison of concentrations from mudflat and spartina plots with toxicity test values for marine biota indicates that under worst-case conditions short- and long-term detrimental effects to aquatic biota from repeated application of Rodeo® for spartina control would be highly unlikely.”(Kilbride and Paveglio)

## **SEPA COMPLIANCE**

Noxious weed control activities have undergone numerous environmental impact evaluations. The use of pesticides is conditioned to mitigate environmental impacts of concern noted in these evaluations.

## **RECEIVING WATER IDENTIFICATION**

### **Geographical Area of Coverage**

Government agencies are required to be covered by the general permit for the following noxious weed herbicide activities which occur in surface waters of the state:

- 1) Into waterbodies that are contiguous with rivers, creeks, and lakes, or
- 2) Into navigable waters, or
- 3) In other situations as determined by the department.

Noxious weeds have the potential to occur in or near virtually any freshwater aquatic or semi-aquatic site in Washington State. These sites include but are not limited to riparian areas, wetlands, marshes, rivers, year round and seasonal streams, lakes, ponds, wet pastures and brackish estuaries. It is vital that new infestations be controlled, wherever they are found, to ensure they do not spread and become much larger problems.

Spartina control locations have been identified in the spartina control management plan for each waterbody. Herbicide applications could potentially occur at all infestations identified in the management plans. Approximate infestation locations have been identified in the management plans for each water body. At this time infestations occur in Pacific, Grays Harbor, Clallam, Jefferson, Kitsap, King, Snohomish, Island, Skagit and San Juan Counties. If new infestations are discovered, the locations will be added to the management plan. New infestations may arise during the course of the permit at which herbicide applications must be an option. Any newly discovered infestations will be added to the management plans.



Submersed noxious weed control locations are indicated in the applications for coverage where the locations are known and planned. Additional lakes or locations may be found that need early infestation treatment. Although the lakes may not be listed on the application for coverage, neighboring property owners will still be notified according to the permit and label required procedures.

Known purple loosestrife locations are included in Appendix B – Noxious Weed Details.

Some noxious weed control situations are a low priority because of minimal environmental impact when herbicides are applied according to the FIFRA label, particularly when compared with the desirability of noxious weed control. These situations are derived in part from exclusions to the definition of “waters of the United States” in 33CFR Part 328.3. These include:

- 1) On land which is in agricultural use where the noxious weed control is performed where treatment would have no environmental impact except to noxious weeds, or
- 2) In man-made retention or detention ponds for wastewater or stormwater treatment, or
- 3) Where herbicide applications are directed onto noxious weeds in a terrestrial setting and not into surface waters.

These situations are described so that the department and other government agencies are not burdened by oversight and permit requirements in situations where a permit would add no additional environmental protection of beneficial uses. The department prefers to focus on the more significant water quality threats for permitting as opposed to the less significant ones that won't adversely affect water quality or related habitat.

## CHARACTERIZATION OF HERBICIDE CONCENTRATIONS

TABLE 1. PERMITTED HERBICIDES USED FOR NOXIOUS WEED CONTROL

Product Name	Active Ingredient	Active ingredient use rate	Active ingredient concentration in treated waters	Use
DMA 4 IVM liquid	2,4-Dichlorophenoxyacetic acid, dimethylamine salt	5.4 to 10.8 pounds/acre foot	2 to 4 ppm	Applied as a liquid into the water
Navigate Granular	2,4-Dichlorophenoxyacetic acid, butoxyethyl ester	19 pounds/acre	2-4 ppm	Applied as a granular pellet into the water
Sonar SRP granular, Sonar AS liquid, Avast	Fluridone: 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1H)-pyridinone	0.05 to 0.25 pounds/acre foot	20 ppb to 90 ppb	Applied as a granular pellet or liquid into the water
Aquatholl K Liquid, Aquatholl Granular, Aquatholl Super K Granular	Endothall: Dipotassium salt of 7-oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	5.5 to 11 pounds/acre foot	2 ppm to 4 ppm	Applied as a liquid or granular pellet into the water
Rodeo Aqua Pro	Glyphosate: N-(phosphonomethyl) glycine, isopropylamine salt			Sprayed on plants, not into water
LI 700	Phosphatidylcholine, methylacetic acid and alkyl polyoxyethylene ether	Total spray volume of adjuvant not to exceed 5 %		surfactant

Product Name	Active Ingredient	Active ingredient use rate	Active ingredient concentration in treated waters	Use
Pro-Spreader Activator	Nonylphenoxy polyethoxy ethanols, isopropanol and Fatty acids			surfactant

### PROCEDURE FOR APPROVAL OF PRODUCTS NOT SPECIFIED IN THE CURRENT PERMIT

The industry indicated that they might lose the use of some pesticides in the current EPA re-registration process and were concerned about the length of time necessary to do a permit modification to allow the use of alternatives not yet approved. In response to this concern the permit allows use of other pesticides after approval through EPA FIFRA and completion of a multi-agency State Environmental Policy Action

The pesticides that may satisfy this requirement after permit issuance are Diquat (Reward®) which could be used for Brazilian elodea, Imazapyr (Arsenal®) possibly for spartina, and Triclopyr (Revovate®) for purple loosestrife and milfoil.

### OTHER PERMIT CONDITIONS

#### MONITORING

Monitoring of residual pesticides may be required to confirm assumptions of persistence when applications are performed in compliance with the pesticide label. The permittee may propose and gain approval for a monitoring plan in lieu of monitoring each application for whole lake herbicide applications, herbicide applications near drinking and stock watering water withdrawal sites, where native vegetation or threatened or endangered species are likely to be affected, or applications to sites where the total area of treatment exceeds ten acres. The intent is to gather information to confirm the assumptions of persistence and toxicity relative to the rate of application. This information may better define the period of temporary diminishment of beneficial uses. Monitoring will not be required during the first year of this permit cycle. The timing of the effective date of the permit is too late into the season to allow thoughtful annual monitoring plan submittal and review. It is hoped that the experience and voluntary monitoring of the first season under an NPDES permit will eventually produce more meaningful monitoring plan development in subsequent years.

## REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-226-090).

## INTEGRATED PEST MANAGEMENT PLANS

By developing integrated vegetation management plans, the permittee should continue to examine the possibility of alternatives to reduce the need for aquatic pesticides. If aquatic herbicides are selected as one of the control options, the permittee should ensure that:

- Herbicides are used only after the assessment of all available control technologies,
- Site-specific action thresholds for aquatic plant removal are determined,
- The herbicides used are the least toxic chemicals at use levels to non-targeted organisms ,
- The least amount of the herbicide needed to effectively control the noxious weed is added to the waterbody, and
- The latest chemical control technologies are considered and utilized.

Once a decision has been made to use aquatic herbicides to manage aquatic plants through the IPM process, the herbicide appropriate to the site and targeted plant is selected. The selection of the herbicide or herbicide formulation may depend on variables such as water exchange, presence of endangered species, areal coverage and density of the targeted plant, susceptibility of the targeted plant to that particular herbicide, water chemistry, etc. The herbicide that has the least toxic impacts to non-target organisms, but is still highly effective in controlling the targeted species should be used. Ecology's updated Final Supplemental Environmental Impact Statement for Freshwater Aquatic Plant Management provides guidance on herbicide toxicity, impacts, and mitigation.

Once the appropriate aquatic herbicide has been selected, the least amount of herbicide needed to effectively control the targeted plant should be used. The herbicide label often recommends rates to control the targeted species, but often knowledge of the latest research provides the most up to date information about effective herbicide rates using the least amount of herbicide. In addition new testing procedures have been developed for some chemicals that allow the target plants to be tested for susceptibility to the herbicide so that the lowest effective herbicide rates can be used. By following the above procedures the least amounts and the least toxic herbicides that will effectively control the target weed can be used

## PERMIT COVERAGE CONDITIONS

The conditions for coverage under the general permit are derived from state regulation at WAC 173-226.

Unless the Department either desires to respond in writing to any facility's Application for Coverage or obtains relevant written public comment, coverage under this general permit of such a facility will commence on the later of the following:

- The thirty-first (31<sup>st</sup>) day following receipt by the Department of a completed and approved Application for Coverage;
- The thirty-first (31<sup>st</sup>) day following the end of a thirty (30) day public comment period; or
- The effective date of the general permit.

If the Department desires to respond in writing to any facility's Application for Coverage or obtains relevant written public comment, coverage under this general permit of such a facility will not commence until the Department is satisfied with the results obtained from written correspondence with the individual facility and/or the public commenter.

## PERMIT MODIFICATIONS

The Department may modify this permit to impose new or modified numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, or Department approved engineering reports. The Department may also modify this permit as a result of new or amended state or federal regulations.

## POSTING REQUIREMENTS

The requirements for public notice, posting, and legal notice of pesticide applications are adopted from previous public notification requirements in department issued orders and short term modifications. In some cases, the public notification requirements were based on EPA FIFRA label requirements.

## RESPONSIBILITY TO COMPLY WITH OTHER REQUIREMENTS

The Department has established, and will enforce, limits and conditions expressed in the general permit for the discharge of wastestreams containing various pesticides registered for use by the EPA and the Washington State Department of Agriculture. These agencies will

enforce the use, storage and disposal requirements expressed on pesticide labels. The Permittee must comply with both the pesticide label requirements and the general permit conditions. The general permit does not supersede or preempt Federal or State label requirements or any other applicable laws and regulations. General permit Condition G11 reminds the Permittee of this fact.

### **GENERAL CONDITIONS**

General conditions are based directly on State and Federal law and regulations and are included in all aquatic pesticide general permits.

### **RECOMMENDATION FOR PERMIT ISSUANCE**

The general permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that the general permit be issued for five (5) years.